

Claims:

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- 1 A circuit for modulating voltage signals comprising:
- 3 a first circuit configuration to substantially simultaneously and asynchronously drive
4 respective positive and negative voltage signals onto respective voltage signal storage
5 elements;
6 and a second circuit configuration to alternatively sample the respective voltage
7 signals of the respective voltage signal storage elements at a substantially predetermined
8 rate.
- 1 2 The circuit of claim 1, and further comprising a liquid crystal cell coupled to said second
2 circuit configuration.
- 1 3 The circuit of claim 2, wherein the substantially predetermined rate is related, at least in
2 part, to the particular liquid crystal material of the liquid crystal cell.
- 4 4 The circuit of claim 2, wherein said first circuit configuration includes circuitry to address
said liquid crystal cell.
- 5 5 The circuit of claim 4, wherein said circuit for modulating voltage signals is coupled in a
liquid crystal display (LCD) system;
said LCD system being adapted to substantially simultaneously and asynchronously
4 drive additional voltage signals onto respective voltage signal storage elements so that the
stored voltage signals of the respective voltage signal storage elements are refreshed.
- 6 6 The circuit of claim 2, wherein said second circuit comprises a plurality of transistors
coupled to electrically isolate said voltage signal storage elements from said liquid crystal cell
3 while alternatively sampling the respective voltage signals of the respective voltage signal storage
4 elements.
- 1 7 The circuit of claim 1, wherein the voltage signal storage elements comprise capacitors.
- 1 8 The circuit of claim 1, wherein said circuit for modulating voltage signals is embodied on an
2 integrated circuit chip.
- 1 9 A liquid crystal display (LCD) system comprising:
2 a voltage signal modulation circuit to locally modulate the voltage signal applied
3 across a liquid crystal cell in said LCD system;
4 said voltage signal modulation circuit including a first circuit configuration to
5 substantially simultaneously and asynchronously drive respective positive and negative
6 voltage signals onto respective voltage signal storage elements and a second circuit
7 configuration to alternatively sample the respective voltage signals of the respective
8 voltage signal storage elements at a substantially predetermined rate.

1 10 The LCD system of claim 9, and further comprising at least one liquid crystal cell coupled
2 to said voltage signal modulation circuit.

1 11 The LCD system of claim 10, wherein the substantially predetermined rate is related, at
2 least in part, to the particular liquid crystal material of the liquid crystal cell.

1 12 The LCD system of claim 10, wherein said system includes circuitry to address said at
2 least one liquid crystal cell.

1 13 The LCD system of claim 10, wherein said LCD system is adapted to substantially
2 simultaneously and asynchronously drive additional voltage signals onto the respective voltage
3 signal storage elements so as to refresh the stored voltage signals.

1 14 A method of modulating a voltage signal locally comprising:
2 applying respective positive and negative voltage signals to respective voltage signal
3 storage elements substantially simultaneously and asynchronously; and
4 sampling the voltage signals of the respective voltage storage elements alternatively
5 at a substantially predetermined rate.

1 15 The method of claim 14, and further comprising a liquid crystal cell coupled to the voltage
2 signal storage elements.

1 16 ~~The method of claim 15, wherein the substantially predetermined rate is related, at least in~~
2 ~~part, to the particular liquid crystal cell material of the liquid crystal cell.~~

1 17 The method of claim 14, wherein the voltage signal storage elements comprise capacitors.

1 18 A voltage signal modulation circuit comprising:
2 a first circuit to substantially simultaneously and asynchronously drive respective
3 voltage signals onto respective voltage signal storage elements; and
4 a second circuit to sample the voltage signals of the respective voltage signal
5 storage elements so as to locally produce a modulated voltage signal.

1 19 The voltage signal modulation circuit of claim 18, wherein the voltage signals comprise
2 respective positive and negative voltage signals and the respective voltage signal storage elements
3 comprise two respective voltage signal storage elements;

4 said first circuit being adapted to substantially simultaneously and asynchronously
5 drive the respective positive and negative voltage signals onto the two respective voltage
6 signal storage elements.

1 20 The voltage signal modulation circuit of claim 18, wherein said second circuit is adapted to
2 sample the voltage signals of the respective voltage signal storage elements at a substantially
3 predetermined rate.

21 The circuit of claim 18, wherein said second circuit is further adapted to sample the voltage signals of the respective voltage signal storage elements so as to substantially maintain a substantially DC bias.

22 A method of modulating a voltage signal locally comprising:

applying respective voltage signals to respective voltage signal storage elements substantially simultaneously and asynchronously; and

sampling the voltage signals of the respective voltage signal storage elements at a substantially predetermined rate so as to locally produce the modulated voltage signal.

23 The method of claim 22, wherein the voltage signals of the respective voltage signal storage elements are sampled so as to substantially maintain a substantially DC bias.

24 A display system comprising:

a voltage signal modulation circuit to locally modulate the voltage signal applied across a light modulating element in said display system;

said voltage signal modulation circuit including a first circuit configuration to substantially simultaneously and asynchronously drive respective voltage signals onto respective voltage signal storage elements and a second circuit configuration to sample the voltage signals of the respective voltage signal storage elements at a substantially predetermined rate so as to locally produce a modulated voltage signal.

25 The system of claim 25, wherein said system is adapted to drive substantially simultaneously and asynchronously additional voltage signals onto the respective voltage signal storage elements so as to refresh the stored voltage signals.